



United States  
Department of  
Agriculture

Forest  
Service

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# Fisheries Report

**(Biological Evaluation and MIS Report)**

## Pine Horse Valley Hazard Tree Removal

Upper Lake Ranger District, Mendocino National Forest  
Lake County, California

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## **Fisheries Report**

### **Proposed Actions**

In July - September of 2018 the Ranch Fire moved across almost all of the Upper Lake Ranger District of the Mendocino National Forest. Thus, large areas of fire killed trees, many of which are adjacent to forest roads pose a safety risk/hazard to our public and Forest Service employees. In order to mitigate this risk and maintain our roads the forest is proposing to remove trees that pose as hazards along roads which access private inholdings and other areas the public and/or Forest Service employees need immediate access. Hazard tree abatement is a form of road maintenance required for safe travel by the public and for administrative uses. A 200' buffer on each side of the roads will be used in order to compensate for at least one and a half tree heights of standing dead trees that have a chance of striking the roads when they fall. The total acreage of the project is approximately 11,514 acres. Of these acres, 3690 are being proposed for commercial removal. The purpose of this project is to maintain our road system and promote safe travel and uncompromised ingress and egress on priority roads. Some of this work may be accomplished by salvage harvesting commercial trees that are hazards from fire-induced mortality that make them a threat to health and human safety (Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region (Angwin 2012)). Hazard trees that are not able to be removed by commercial harvest will be either cut and left in place or cut and removed by other means (such as mastication, prescribed fire or through a biomass burner). Road maintenance activities will include grading and cleaning of drainage features such as ditches, waterbars or rolling dips.

### **Affected Environment**

A total of 2004 treatment acres of this project occur within the Bucknell Creek and Soda Creek-Eel River watersheds which contain anadromous fish habitat. The majority of the drainages within the project area are ephemeral with some being intermittent. These lower order drainages support little to no riparian vegetation, if present it is adjacent (within 5 to 10 feet) of the stream. According to the Hydrology report (USDA 2019), very little riparian vegetation has recovered after the Ranch Fire. Although the Ranch Fire of 2018 burned very hot in some areas, the majority of the fire burned at a moderate to low severity. Also, the location of the most severe burn areas along ridgetops splits the effects into adjacent watersheds. Elevated erosion and sedimentation are expected for several years but negative effects should be ameliorated in time and space as this sediment makes its way downstream, per Hydrology Report (USDA 2019) Species in Table 1 were considered for analysis because they are federally listed as either threatened, endangered, proposed or as candidate species or have designated critical habitat on the Mendocino National Forest.

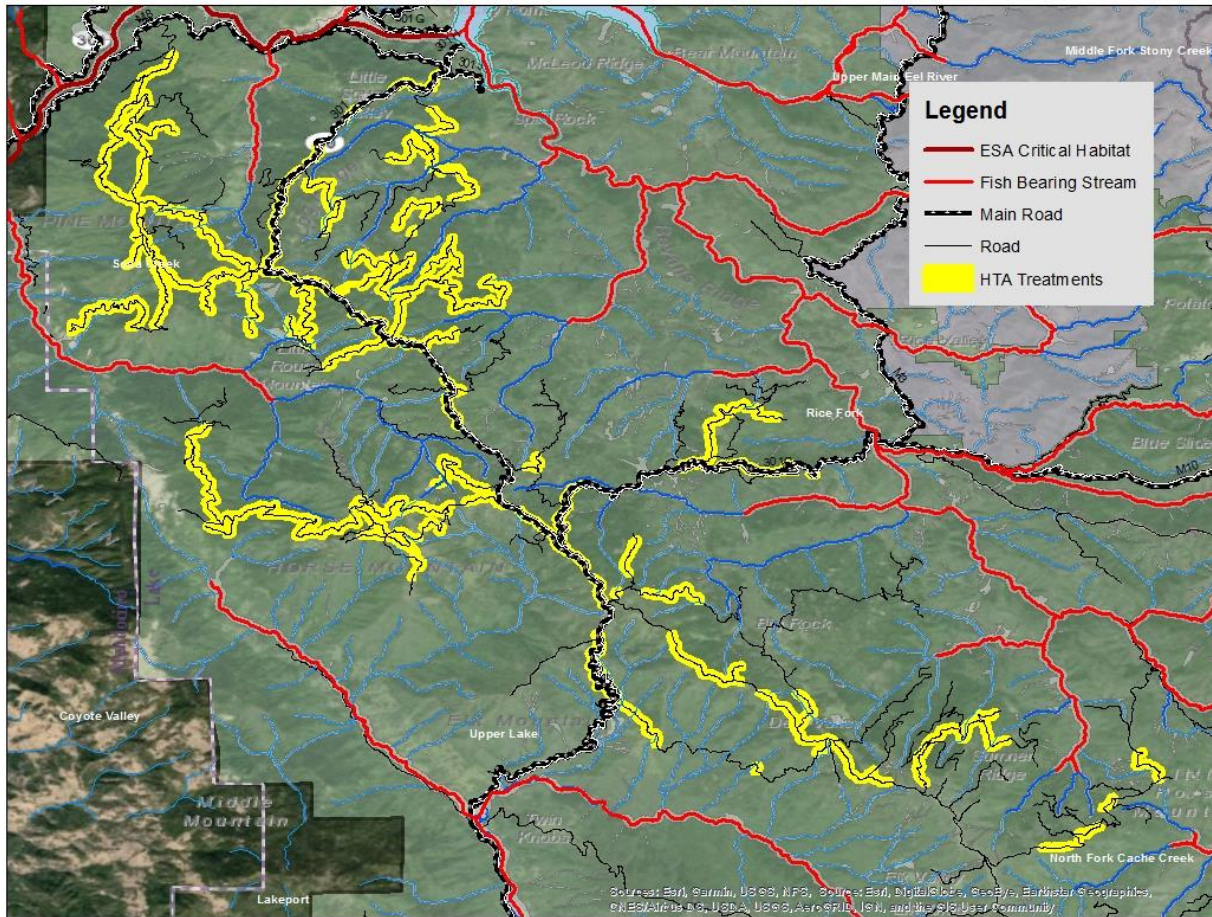


Figure 1: Map illustrates hazard tree abatement treatment areas in relation to fish bearing streams.

### Foreseeable Future Projects

Foreseeable Future Projects – These include future fuels reduction projects, however there are no plans at this time. If and or when a project is proposed within these watersheds, additional analysis will be completed.

### Environmental Consequences

Table 1: Endangered, Threatened, Proposed, Candidate species and designated critical habitat within the Mendocino National Forest.

Species/Habitat	Status	Project within species	Habitat in or near	Species present (Y/N)	Effects	Determination

		<b>distribution range (Y/N)</b>	<b>project area (Y/N)</b>			
<b>SONCC Coho salmon ESU</b> <i>Oncorhynchus kisutch</i> (Walbaum)	T	Y	Y	N	None	No Effect
<b>SONCC Coho salmon ESU</b> Critical Habitat	XP	Y	Y	N	None	No Effect
<b>CC Chinook salmon ESU</b> <i>Oncorhynchus tshawytscha</i> (Walbaum)	T	Y	Y	N	None	No Effect
<b>CC Chinook salmon ESU</b> Critical Habitat	XP	Y	N	N	None	No Effect
Chinook – Central Valley Spring Run ESU	T	N*	N*	N	None	No Effect
Chinook – Sacramento River Winter Run ESU	T	N*	N*	N	None	No Effect
Chinook – Sacramento River DPS – Critical Habitat	XP	N*	N*	N	None	No Effect
<b>NC Steelhead trout</b> <i>Oncorhynchus mykiss</i> (Walbaum)	T	Y	Y	Y	None	No Effect
NC Steelhead trout Critical Habitat	XP	Y	N	N	None	No Effect



Steelhead – CA Central Valley	T	N*	N*	N	None	No Effect
Steelhead – CA Central Valley DPS Critical Habitat	XP	N*	N*	N	None	No Effect
Delta smelt	T	N*	N*	N	None	No Effect
Green Sturgeon, Southern DPS	T	N*	N*	N	None	No Effect
Vernal pool fairy shrimp	T	N*	N*	N	None	No Effect
Vernal pool tadpole shrimp	T	N*	N*	N	None	No Effect

\*outside range, Distinct Population Segment (DPS), Evolutionary Significant Unit (ESU)

The project area is within the distribution range and habitat is present for the **SONCC Coho salmon**, **CC Chinook salmon** and the **NC Steelhead**; therefore, these species will be further discussed in this analysis, and the effects of proposed actions on these species and their critical habitat will be considered.

Species listed in table 2 were considered for analysis because they are listed in the Regional Forester's sensitive species list for the Mendocino National Forest.

**Table 2: USDA Forest Service, Pacific Southwest Region, Mendocino National Forest, Regional Forester's sensitive fish species.**

Species	Status	Project within Distribution Range (Y/N)	Habitat in or near project area (Y/N)	Species present (Y/N)	Effects	Determination
<b>Pacific Lamprey</b> <i>Entosphenus tridentatus</i>	S	Y	Y	Y	None	No Effect

<b>Western Brook Lamprey</b> <i>Lampetra richardsoni</i>	S	Y	Y	Y	None	No Effect
Clear Lake Hitch <i>Lavinia exilicauda chi</i>	S	N	N	N	None	No Effect
Hardhead <i>Mylopharodon conocephalus</i>	S	N	N	N	None	No Effect

Table 3 – Management Indicator Species (MIS)

<b>Species</b>	<b>Status</b>	<b>Project within Distribution Range (Y/N)</b>	<b>Habitat in or near project area (Y/N)</b>	<b>Species present (Y/N)</b>	<b>Effects</b>	<b>Determination</b>
<b>Rainbow Trout</b> <i>Oncorhynchus mykiss</i>	MIS	Y	Y	Y	None	No Effect

## Direct and Indirect Effects

### ESA

The Action area is located amongst drainages that flow into the Eel River below Scott dam and is in the geographic range for the **CC Chinook salmon ESU, SONCC Coho salmon ESU, NC Steelhead DPS, and critical habitat for SONCC Coho salmon**. These species and associated critical habitat are found approximately 2 miles downstream of the project area. No suitable

habitat is located directly within or adjacent to the project area. As mentioned previously, due to the distance from the project, the limited size of the project, the location of the project (adjacent to roads that only cross ephemeral and intermittent drainages) and associated BMPs (listed below), we are anticipating little to no negative effects to these species and associated critical habitat. Therefore, it is my determination that the Pine Horse Valley Hazard Tree Removal Project will have “No Effect” on the CC Chinook salmon ESU, SONCC Coho ESU, NC Steelhead DPS and critical habitat for SONCC Coho salmon.

### **Forest Service Sensitive**

The project area is within the elevation and geographic range of the **Pacific lamprey and Western Brook Lamprey**, however only a small amount of acres within this species watershed (2004) may be impacted by this project, and the species would not be present during implementation; therefore, it is my determination that the Pine Horse Valley Project will not affect the Pacific lamprey or the Western Brook Lamprey.

There would be no effects to the Clear Lake hitch or Hardhead (both FS Sensitive species) since the project area is outside of their range.

### **Management Indicator Species**

The project is generally well removed and buffered from rainbow trout habitat. Resident rainbow trout are documented to occur in Bucknell and Benmore Creeks downstream of the project areas. This species is a resident version of steelhead, but is not protected under the ESA. The project is not anticipated to have negative effects on the rainbow trout or its habitat as the project, because of BMPs, design features location (ridge tops crossing only intermittent and ephemeral drainages and along roads) and size would have no detectable effects. Thus there would be no direct or indirect or cumulative effects from removal of road side hazard trees and associated fuel reduction projects on the rainbow trout.

### ***Compliance with law, regulation, policy, and the Forest Plan***

Compliance for this project include: Clean Water Act (1977), Executive Order 11988 (Floodplain Management, 1977), National Forest Management Act (1976), Mendocino National Forest Land and Resource Management Plan (1996), Porter- Cologne Water Quality Control Act (1999), Executive Order 11990 (Protection of Wetlands, 1977) . The following were excluded because they are not affected by the project or do not apply: Coastal Zone Management Act (1972; 16 USC 1451), Wild and Scenic Rivers (1508.27 (b)(3)).

### **Project Design Features and Best Management Practices**

Forest management and associated road building in the steep rugged terrain of forested mountains has long been recognized as sources of non-point water quality pollution. Non-point pollution is not, by definition, controllable through conventional treatment means. It is controlled by containing the pollutant at its source, thereby precluding delivery to surface water. Sections 208 and 319 of the Federal Clean Water Act, as amended, acknowledge land treatment

measures as being an effective means of controlling non-point sources of water pollution and emphasize their development.

The Forest Service have developed and documented non-point pollution control measures to National Forest System lands. These measures were termed “Best Management Practices” (BMPs) and are designed to accommodate site specific conditions. They are tailor-made to account for the complexity and physical and biological variability of the natural environment. The following BMP’s have been identified to address watershed management concerns. These BMPs come from the 2012 Forest Service publication “National Best Management Practices for Water Quality Management on National Forest System Lands.” The implementation monitoring is done after the project has been completed, but before the winter season. Effectiveness monitoring is then completed on year later to determine success of BMP implementation.

**All work and hauling should be done outside of the rainy season when soils are dry and potential damage to roads are minimized.**

#### **Chem 5 and Road 10 (Chemical Handling and Disposal/ Equipment Refueling and Servicing)**

##### Objective

*Chem 5-* Avoid or minimize water and soil contamination when transporting, storing, preparing, and mixing chemicals; cleaning equipment or disposing chemical containers.

*Road 10-* Avoid or minimize adverse effects to soil, water quality, and riparian resources from fuels, lubricants, cleaners, and other harmful materials discharging into nearby surface waters or infiltrating through soils to contaminate groundwater resources during refueling and servicing activities.

Application- Handling chemicals, chemical containers and equipment (including petroleum-based) can lead to contamination of surface water or groundwater if not done carefully. Spills, leaks, or wash water can contaminate soil and leech into groundwater. Residue left on containers or equipment can wash off during precipitation events and enter surface waters.

Containers should be inspected on a regular basis to ensure no leaks, and stored away from riparian reserves. Spill kits should be available in case of an accidental spill. All waste should be disposed of according to state, federal and local regulations.

#### **Road 4 (Road Operations and Maintenance)**

Objective- Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by controlling road use and operations and providing adequate and appropriate maintenance to minimize sediment production and other pollutants during the useful life of the road.

Application- Consideration is given to the potential water quality effects from road damage when oversize or overweight loads are driven over forest roads. Roads should be routinely inspected to ensure they are not being impacted by log trucks. Water all dirt roads to minimize dust.

#### **Veg 2 (Erosion Prevention and Control)**

Objective- Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian

resources by implementing measures to control surface erosion, gully formation, mass slope failure, and resulting sediment movement before, during, and after mechanical vegetation treatments.

Application- The process of erosion control has three basic phases; planning, implementation, and monitoring. During planning, areas subject to excessive erosion, detrimental soil damage and mass failure can be identified and avoided. Suitable erosion control measures are implemented while the maintenance of implemented measures will ensure their function and effectiveness over their expected design period.

The potential for accelerated erosion or other soil damage during or following mechanical treatments depends on climate, soil type, site conditions, and type of equipment and techniques used at the site. Erosion control measures are grouped into two general categories: structural measure to control and treat runoff and increase infiltration and nonstructural measures to increase ground cover.

### **Veg 3 (Aquatic Management Zone) (also Riparian Reserves and Streamside Management Zones)**

Objective- Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources when conducting mechanical vegetation treatment activities in AMZ.

Application- Designation of an AMZ around and adjacent to waterbodies is a typical BMP to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources. Mechanical vegetation treatments are a tool that can be used within the AMZ to achieve a variety of resource-desired conditions and objectives when implemented with suitable measures to maintain riparian and aquatic ecosystem structure, function, and processes. Depending on site conditions and resource-desired conditions and objectives, mechanical vegetation treatments in AMZ could range from no activity or equipment exclusion to purposely using mechanical equipment to create desired disturbances or conditions. When treatments are to be used in AMZ, a variety of measures can be employed to avoid, minimize, or mitigate soil disturbance, damage to waterbody, loss of large woody debris recruitment, and shading, and impacts to floodplain function.

### **Veg 4 (Ground-Based Skidding and Yarding Operations)**

Objective- Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources during ground-based skidding and yarding operations by minimizing site disturbance and controlling the introduction of sediment, nutrients, and chemical pollutants to waterbodies.

Application- Ground-based yarding systems include an array of equipment from hoses, rubber-tired skidders, and bulldozers, to feller or bunchers, forwarders, and harvesters. Each method can compact soil and cause soil disturbance, though the amount of impact depends on the specific type of equipment used, the operator, unit design, and site conditions. Ground-based yarding systems can be designed and implanted to avoid, minimize, or mitigate potential adverse effects to soils, water quality, and riparian resources.

### **Veg 5 (Cable and Aerial Yarding Operations)**

Objective- Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian

resources during cable and aerial yarding operations by minimizing site disturbance and controlling the introduction of sediment, nutrients, and chemical pollutants to waterbodies.

Application- Cable and aerial yarding systems partially or fully suspend logs off the ground when yarding logs to the landing. They include skyline cable, helicopter, and balloon systems that typically are used in steep, erodible, and unstable areas where ground-based systems should not operate. Soil disturbance and erosion risks from these systems are primarily confined to cable corridors and landings.

### **Veg 6 (Landings)**

Objective- Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources from construction and use of log landings.

Application- Landings are generally sites of intense activity, with lots of equipment working in these concentrated areas. Chemicals and fuels are often stored at these locations to service equipment, leaving a high probability of soil compaction, overland flow, and soil contamination. Any chemical and fuel containers should be disposed of appropriately, in addition to any refuse (tires, chains, chokers, cables, and miscellaneous discarded parts). Contaminated soils should also be disposed appropriately. Provide ground cover where necessary to prevent erosion.

### **WatUse3 (Administrative Water Development)**

Objective- Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources when developing and operating water sources for Forest Service administrative and resource management purposes.

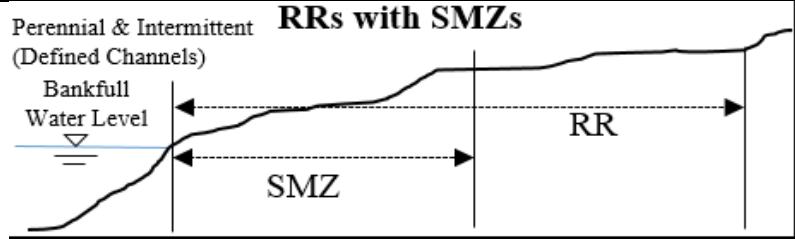
Application- Water source developments are needed to supply water for a variety of Forest Service administrative and resource management purposes, including dust control. Locations used for drafting should be preexisting locations, such as any of the boat ramps along Lake Pillsbury or under the bridge of M1, below Scott Dam. Utilizing a high volume pump will help prevent water trucks from having to back down into water (which could have an effect of water quality if the truck has a leak).

### **BMP Checklist**

This checklist was created as an easy way to ensure all BMP's are followed. BMP's have been characterized for applicability for pre, during, and post project. (check boxes for each stage, greyed out boxes do not apply to that stage)

Pre	During	Post	<b>Road 10- Equipment Refueling and Servicing/ Chem 5- Chemical Handling and Disposal</b>
			Allow refueling and servicing only at locations well away from water or riparian resources.
			Transport and handle chemical/fuel containers in a manner that prevents leaks and spills.
			Inspect, secure, and check containers regularly.

			Store any chemicals, including fuels, outside of Riparian Areas. Install contour berms and trenches around vehicle service and refueling areas, chemical storage and use areas, and waste dumps to fully contain spills if necessary.
			Have spill kit or containment device on hand.
			Dispose of containers and contaminated soils appropriately from NFS lands.
			Report spills and initiate appropriate clean-up action in accordance with applicable State and Federal laws, rules and regulations.
<b>Road 4- Road Operations and Maintenance</b>			
			Water all dirt roads used for hauling.
			Inspect roads/haul routes frequently to ensure roads are not being impacted by log trucks.
			Restrict use or modify route if road is being damaged, such as unacceptable surface displacement or rutting.
			Roads used for hauling will be graded.
<b>Veg 2- Erosion Prevention and Control</b>			
			No ground-based mechanical equipment entry into unstable areas (unstable riparian reserves), such as active landslides and inner gorges. Inner gorges are 65% and above slopes immediately adjacent to stream beds. They extend up slope until a slope break where slopes are less than 65% or at ridge top.
			Leave felled hazard trees if fuels density meets objectives.
			All water control features (especially on roads) must be repaired and in working condition post-haul or prior to big storms.
			Use existing landings where possible. New landing construction should follow Veg 6 practices.
			No ground equipment on road cuts/road fills over 25% slope.
<b>Veg 3- Aquatic Management Zones (Riparian Reserves and Streamside Management Zones, RRs and SMZs)</b>			
			Retain all riparian-associated vegetation within the SMZs and RRs of seeps, springs, and unstable areas.
			Crossings of streams must be approved by the district hydrologist or fish biologist.
			Tractor piling is not permitted within RRs or SMZs.
			Cover bare soil areas that exceed 50 sq ft with mulch or slash if the area is likely to deliver sediment to a stream.
			<b>For RRs:</b> On slopes <50%, retain at least 50% ground cover (litter, duff, rocks) evenly distributed across the treatment area. For slopes >50%, retain at least 70% ground cover.
			<b>SMZs have been identified and marked in the field with blue/white stripe flagging (also Fig.1).</b>

			<b>For SMZs:</b> Retain at least 70% ground cover (litter, duff, rocks) evenly distributed across the treatment area.															
			<b>For SMZ:</b> <u>No ground-based mechanized equipment will be allowed in SMZ.</u>															
			<b>For SMZ:</b> Trees cut in the SMZ must be felled toward the RR. If it is necessary to remove the tree, it should be end lined or grapple skidded from outside of the SMZ, suspending one end where feasible.															
			<div><div>Perennial &amp; Intermittent (Defined Channels) </div><table><tr><th colspan="3">RR and SMZ width for each streamclass: (*Numbers are for EACH side)</th></tr><tr><th>Streamclass</th><th>Riparian Reserve Buffer</th><th>Streamside Management Zone Buffer</th></tr><tr><td>Perennial</td><td>300 feet</td><td>The greater of 100' slope distance or to the slope break.</td></tr><tr><td>Intermittent</td><td>150 feet</td><td>The greater of 50' slope distance or to the slope break</td></tr><tr><td>Ephemeral</td><td>100 feet</td><td>50'</td></tr></table></div>	RR and SMZ width for each streamclass: (*Numbers are for EACH side)			Streamclass	Riparian Reserve Buffer	Streamside Management Zone Buffer	Perennial	300 feet	The greater of 100' slope distance or to the slope break.	Intermittent	150 feet	The greater of 50' slope distance or to the slope break	Ephemeral	100 feet	50'
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Ephemeral	100 feet	50'																
<b>Veg 4- Ground-Based Skidding and Yarding Operations</b>																		
			Prohibit equipment in designated SMZ's. Material may be removed from this zone however heavy equipment is excluded and would require review and approval by District or Forest Hydrologist for entry.															
			In <b>Riparian Reserves</b> , fell only trees deemed a hazard according to the Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region. When felling trees, retain the highest stump possible.															
			Mechanical operations should occur during dry soil conditions; typically May 15-October 15. Operating during these times will minimize impact and reduce the potential for increased erosion.															
			Ground-based heavy equipment will be limited to stable slopes less than 35%. Occasional use on stable slopes up to 40% for a distance not to exceed 100 feet is acceptable.															
			Retain at least 50% ground cover (litter/duff/rock) across <b>all treatment areas</b> . Retention and even distribution of fine vegetation (rather than rocks) should be favored for ground cover and nutrient cycling.															
			Fall merchantable trees perpendicular to roads to minimize the skidding lengths.															
			Align non merchantable hazards trees along the contour to create erosion control, if possible, given safety considerations.															
			Preference for utilizing <u>tracked</u> feller bunchers.															
			Maintain ALL live or possible re-sprouting vegetation for stability.															



			Any soil displacement caused by the mechanical equipment greater than 4 inches in depth would be back bladed or water-barred to prevent water concentration.
			Remove any material resulting from project activities causing obstruction of stormflows, (immediately upstream of culverts).
			Ensure recognition and protection of areas related to water quality protection delineation on Sale Area Maps. The sale administrator and purchaser will review these areas on the ground prior to commencement of ground disturbing activities. Examples of water quality protection features that will be designated on the project map include: <ul style="list-style-type: none"> <li>1) Location of streamcourses and riparian reserves to be protected</li> <li>2) Wetlands (meadows, lakes, springs, etc.) to be protected.</li> <li>3) Unstable areas to be protected.</li> </ul>
<b>Veg 5- Cable and Aerial Yarding Operations</b>			
			Locate cable corridors to efficiently yard materials with the least soil damage.
			No yarding across stream corridor (unless the logs are fully suspended).
			Postpone yarding operations when soil moisture levels are high that it would result in unacceptable soil disturbance.
			Whole tree yard when possible.
			Provide ground cover where needed.
			At least one end of the log should be suspended whenever possible.
<b>Veg 6- Landings</b>			
			Remove all logging machinery refuse (tires, chains, chokers, cables, and miscellaneous discarded parts).
			Install any suitable drainage features to prevent erosion.
			Provide ground cover where needed.
<b>Water Use 3- Administrative Water Developments</b>			
			Water will not be drafted from project-area streams
			Below 4.0 cfs, drafting rates should not exceed 20 percent of surface flows.
			Draft from existing locations/ramps to Clear Lake
			Follow Road 10/Chem 5 to prevent contamination of fuels and chemicals into waterways.
			Water-drafting vehicles shall contain petroleum spill kits. Dispose of absorbent pads accordingly.

## Literature Cited

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## Appendix A- Compliance Check with LRMP

### Standards and Guides

The following checklist covers the LRMP Standards and Guides with which projects and activities must comply regarding the resources normally evaluated by the hydrologist. Information is provided regarding project design elements and resource conditions which affect the project's or activity's compliance with the Standards and Guides.

Watershed & Water Quality (Pages IV - 40, 41)		
S&G #	Requirement	Project Compliance
1a.	Within all watersheds, identify depleted watershed areas during the project environmental assessment process. Incorporate improvement activities as a part of the project.	Watersheds that were hardest hit from the 2018 Ranch Fire are apparent in the CWE analysis (those showed larger ERA's % used). This project will help alleviate some of these same effects in the future by reducing fuel loads, and therefore reduce effects of future wildfires.
1c.	Within all watersheds, analyze projects that propose land disturbing activities for their effects on the appropriate level of watershed (normally second to fourth order watersheds) in order to prevent excessive cumulative watershed effects on stream channel condition and water	CWE's were analyzed according to the ERA methodology (which includes past, present, and proposed activities). Cumulative activities within 6 <sup>th</sup> field watersheds remain below Threshold of Concern.

	quality. Cumulative watershed effects (CWE) analysis will be used to gauge impacts of past, present, and proposed management activities on a watershed.	
1d.	Within all watersheds, implement Best Management Practices (BMP) to meet water quality objectives and maintain and improve the quality of surface water on the Forest. Identify methods and techniques for applying the BMPs during project level environmental analysis and incorporate them into the associated project plan and implementation documents.	BMPs prescribed in the Project Design Features and Best Management Practices of the Hydrology report are based on field review of the project.
<b>Riparian and Aquatic Ecosystems</b> <b>Pages (IV 30-33)</b>		
1a.	Maintain and restore the distribution, diversity and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.	The Proposed Action will help achieve these values and objectives by reducing fuels and returning fire to areas where fire has been suppressed.
1b.	Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.	This project is not anticipated to have a negative effect on spatial or temporal connectivity between watersheds. The Proposed Action will have limited activities within Riparian Reserves while no mechanized equipment would be allowed within Streamside Management Zones.
1c.	Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.	There are no anticipated negative effects to these values by the Proposed Action. Heavy equipment would be buffered from streams during thinning. Any crossing would have to be approved by a hydrologist or fisheries biologist. Crossings used would have to be repaired.
1d.	Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and	Activities from the Proposed Action will not have a negative effect on water quality. Heavy equipment would be buffered from streams and leaving of slash and unmerchantable material will improve ground cover.

	chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.	
1e.	Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.	There are no activities that are anticipated to negatively affect the sediment regime. Heavy equipment would be buffered from streams. Roads would be regraded and maintained during or after implementation of the project.
1h.	Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.	These values would be maintained and/or restored. The work would not take the RR vegetation outside the natural range, but rather help reduce (and prevent) future wildfire effects. The Proposed Action will help achieve these values and objectives by reducing fuels. Alternative 1 “No Action” would fail to yield these benefits.
1i.	Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.	The purpose of this project will maintain the limited true riparian habitat within the project boundaries and help protect it from future wildfire.
3b.(2)	In Riparian Reserves, do not use mitigation or planned restoration as a substitute for preventing habitat degradation.	Mitigation is not being substituted for prevention of habitat degradation; there are no proposed actions to degrade habitat in Riparian Reserves.